A new species and lectotypification in Campanulaceae: Lobelioideae

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Summary

Albrecht, D.E. (2000). A new species and lectotypification in Campanulaceae: Lobelioideae. *Austrobaileya* 5(4):705–709. *Pratia puberula* Benth. is lectotypified and *Lobelia leucotos* Albr. described and illustrated, with notes on distribution, habitat and relationships with other species of Lobelioideae.

Keywords: *Pratia puberula*; *Lobelia leucotos*; Campanulaceae; Lobelioideae; Queensland.

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Introduction

A taxonomic treatment of Australian Lobelioideae by the author is progressing. However, it may be some time before completion due to the unresolved problem of generic limits and to species complexes requiring further detailed study. Nevertheless, some undescribed taxa within this subfamily present few problems, and it seems sensible to expedite publication of names for them so that they are available for use. This paper validates the name of a new species from Queensland. A specimen of this taxon, apparently collected at Cooper's Creek, South Australia was cited by Bentham (1868) as a syntype of *Pratia puberula* Benth. In order to extricate this specimen from *Pratia puberula* sensu stricto so that the entity that it represents can be described without confusion, *Pratia puberula* is here lectotypified.

Floral measurements are based on fresh, spirit or rehydrated material.

Typification of *Pratia puberula*

Pratia puberula Benth., Fl. Austral. 4: 133 (1868). **Type**: Victoria, marshes at Cobra [Cobberas Mountains], *F. Mueller* (lecto: K, here selected); probable isolecto: Cobra, Jan 1854, *F. Mueller* (MEL [MEL 1592621]).

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In the protologue of *Pratia puberula*, Bentham (1868) cited the following three collections: New South Wales, Glendon (Leichhardt); Victoria, moist, grassy, and marshy places at Cobra and Mount Barkly (F. Mueller); and South Australia, Cooper's Creek (Bowman). Mueller's cited collection from Victoria actually consist of three specimens, two from the Cobberas Mountains (K and MEL [MEL 1592621]) and one from Mount Barkly Ranges (MEL [MEL 1592622]).

Bentham's protologue includes a description of the fruit and seeds of this species, both critically diagnostic in the Lobelioideae, and as Mueller's specimens from the Cobberas Mountains are the only syntypes with fruit and seed, albeit rather immature, one of them has been selected here as lectotype. Bentham does not appear to have examined Mueller's specimen housed at MEL and must have based his fruit and seed description on the K specimen which is, therefore, here selected as lectotype.

There have been various applications of the name *Pratia puberula* and much confusion between it and *P. pedunculata* (R.Br.) Benth. has resulted. The lectotypification of *Pratia puberula* as undertaken here maintains the prevailing concept of *P. puberula* in South Australia (Toelken, 1986) and in Victoria, where *P. puberula* is regarded as a synonym of *P. pedunculata* (Willis 1973, Albrecht 1999). Further study of the *P. pedunculata* - *P. puberula* complex is required to determine

whether or not more than a single taxon warrants recognition within it. Clarification of the typification of *P. pedunculata* is also required.

Whilst all of Mueller's specimens cited by Bentham represent the one entity here defined as *Pratia puberula*, Bentham's other syntypes of this name are not of this species. Leichhardt's specimen from Glendon (MEL 1592620) is *Pratia purpurascens* (R.Br.) E.Wimm., while Bowman's specimen is of the species described here as *Lobelia leucotos*. There is some uncertainty about the origin of Bowman's collection as the specimen has two labels. The smaller of the two labels gives the location "Cooper Creek" and is numbered 228, while the larger label gives the location "Capes River" in Mueller's hand with a further annotation by J.H.Willis indicating the collector as 'Bowman'. It is highly unlikely that Bentham's citation "South Australia, Cooper's Creek" is correct for this specimen as *Lobelia leucotos* is not known to occur in this part of Australia. There is a Cooper Creek, west-south-west of Mackay, Queensland, which is closer to, but still slightly to the south of, the known range of *L. leucotos*. The most likely location of collection of Bowman's specimen is Cape River, Queensland. This location is to the south of Charters Towers and within the known range of *Lobelia leucotos* (*Cumming* 9589 (BRI) is from near this location). Bowman collected specimens of other species (e.g. *Eremophila debilis* (Andrews) Chinnock and *Rhynchospora pterochaeta* F.Muell.) from the Cape River area of Queensland (J. Clarkson pers. comm.).

Taxonomy

Lobelia leucotos Albr., **sp. nov**. *Lobeliae stenophyllae* Benth. affinis sed floribus unisexualibus, lobis corollae in latitudine subequalibus, tubo corollae fisso profundiore, hypanthio puberulo dense, alveolis seminibus elongata plerumque differt. **Typus**: Queensland. Cook District: Mareeba on the property of J. Clarkson on La Spina Road, 17°01'S, 145°24'E, 9 March 1993, *J.R. Clarkson* 9788 (holo (functionally male): BRI [AQ 580063]; iso: DNA, K, L, MBA, MEL; para (functionally female): ditto, *J.R. Clarkson* 9787, BRI [AQ 580062]; iso para: DNA, K, L, MBA, MEL, MO, NSW, PERTH).

Herbaceous dioecious perennial. Stems prostrate or decumbent, puberulous, rarely almost glabrous, rooting at the nodes. Leaves distichous, sometimes purple-tinged below, lanceolate or elliptic to ovate or obovate, 4–44 mm long, 2–15 mm wide, puberulous, with margins toothed, apex acute to obtuse, and base cuneate or occasionally obtuse; petiole ill-defined or rarely to 3mm long. Flowers solitary, axillary. Bracteoles 0.1–0.6 mm long. Pedicels 3–35 mm long, puberulous or rarely almost glabrous. Hypanthium obconic, ellipsoid or obovoid and 1–2.5 mm long in functionally male flowers, ovoid to obovoid and 2–4.5 mm long in functionally female flowers, puberulous externally. Calyx lobes erect, triangular, 1–2.2 mm long, puberulous, at least some toothed towards base. Corolla zygomorphic, 2-lipped, 4.5–8 mm long, generally slightly smaller on female plants, white throughout or occasionally with a slight green or purplish tinge externally, + puberulous externally; lobes lanceolate-triangular to narrowly elliptic, glabrous on inner surface, acute; upper lobes two, 3.5–5 mm long, 0.6–1.2 mm wide, slightly more deeply cut than the lower lobes, erect; lower lobes three, 2.5–4 mm long, 0.6–1.3 mm wide, spreading or recurved, with a green zone at the base; tube 2–4 mm long, split to within 0.8–1.5 mm of the base, puberulous internally. Stamens with filaments 2.5–4 mm long, adnate to the corolla tube for 0.5–1.5 mm above the distal edge of the hypanthium, distally connate for up to c. 0.5 mm, the dorsal three evenly tapered, green becoming purplish distally, glabrous or puberulous on inner surface, the ventral two distally broad, thickened and white tinged purple (these features less pronounced in functionally female flowers), tapering rather abruptly to a narrower green lower part, puberulous on inner surface. Anther tube 1.4–2 mm long in functionally male flowers, 0.8–1.4 mm long in functionally female flowers, glabrous on the exterior surface, two ventral anthers each with a seta 0.15–0.3 mm long, dorsal anthers lacking apical setae. Style glabrous to puberulous; stigma protruding from the orifice of sterile anther tube in mature

functionally female flowers. Capsule ovoid to ellipsoid, slightly compressed, 4–9.5 mm long, 3–5 mm diameter, puberulous; apical valves raised 0.5–1.5 mm above base of calyx lobes. Seeds brown, ellipsoid to broadly ellipsoid, sometimes asymmetrical, slightly compressed, 0.4–0.6 mm long, 0.3–0.4 mm wide; testa reticulate, alveolae all elongate or elongate and + isodiametric. Fig. 1A-G

Specimens examined: **Queensland.** BURKE DISTRICT 16.4 km N of Hughenden, Sep 1988, *Ingleby* QHW 38 (NSW). COOK DISTRICT: c. 50 m N of Barron Falls railway station, Jan 1993, *Albrecht* 5210 *& Jobson* (MEL); E Side of Kennedy Hwy, c. 1.5 km S of Mareeba, Jan 1993, *Albrecht* 5211 *& Jobson* (MEL); Black Rock (Lynd), Apr 1988, *Horsup* 89 (BRI); Mareeba, Apr 1962, *McKee* 9066 (BRI, CANB, NSW); Goldmine Creek, 19 km from Mareeba towards Kuranda along Hwy, May 1972, *Wrigley & Telford* NQ 272 (CBG). NORTH KENNEDY DISTRICT: Cape River, no date, *Bowman* [MEL 1592619](MEL); Mt Fox, Dec 1949, *Clemens* [AQ 417048] (BRI); 22 km N of Burra microwave tower, towards Poison Valley, W of Pentland, Apr 1990, *Cumming* 9589 (BRI); Herberton, Jan 1936, *Flecker* 1317 (AD); Hellhole Creek, near Taravale Homestead, 15km along Taravale road from Ewan road turnoff, May 1994, *Jobson* 2990 *& Dixon* (MEL); Herberton, Jan 1912, *Kenny* [AQ 27373] (BRI); Nigger Creek, Herberton, no date, *Kenny* [AQ 27374] (BRI); c. 45 miles SE of Mt Garnet, Jan 1968, *Morain* 282 (BRI); Herberton, Jun 1905, *Ringrose* [AQ 27380] (BRI); "Lansdown", c. 25 miles S of Townsville, Mar 1971, *Robertson* T211 (BRI); Townsville, no date, *Simmons* 283 (BRI).

Distribution and habitat: *Lobelia leucotos* is endemic in north Queensland. The species is known from scattered populations in the Cook and North Kennedy Pastoral Districts and from a single collection in the Burke Pastoral District. The known latitudinal range of the species is from approximately 16 °S to 21°S. Most collections have been made in grassy woodlands on heavy basalt-derived soils, with fewer collections on sandy or skeletal substrates. Some populations are likely to experience regular burning (J. Clarkson pers. comm.).

Phenology: Flowering specimens have been collected between January and June. Fruiting specimens have been collected in March and April.

Notes: Without supplementary water plants die back during dry periods and resprout after rains. Plants are known to occur in gardens and under such conditions will remain leafy throughout the year (J. Clarkson pers. comm.).

Lobelia leucotos and *L. stenophylla* Benth. (s. str., which occurs from southern Queensland to northern New South Wales) share two diagnostic character states that are absent or extremely rare in other Australian Lobelioideae. In both species, the two ventral staminal filaments are broad and thickened distally, and narrow and attenuate proximally (Fig. 1C). In *L. leucotos* these features are more accentuated in functionally male flowers than in functionally female flowers. The two ventral anthers in both species also lack penicillate hairs at the apex, though each have a single apical seta (Fig. 1D). This feature is otherwise known only in *Hypsela tridens* E.Wimm. *Lobelia leucotos* differs from *L. stenophylla* in a number of important floral features set out in the following synopsis:

L. leucotos: Flowers functionally unisexual; corolla lobes white on inner surface, subequal in width or occasionally the upper pair slightly narrower; corolla tube split to within 0.8–1.5 mm from its base; hypanthium densely puberulous externally; seed alveolae predominantly elongate.

L. stenophylla: Flowers bisexual; corolla lobes white, blue or mauvish on inner surface, the upper pair less than half the width of the lower 3 lobes; corolla tube split to within 2–4 mm from its base; hypanthium glabrous or rarely sparsely puberulous externally; seed alveolae predominantly + isodiametric.

Lobelia leucotos occurs in coastal and inland locations between the latitudes of c. 16°S to c. 21°S, whilst *L. stenophylla* occurs predominantly in near-coastal areas and has a more southerly distribution between c. 20°S and c. 32°S.

Specimens of *Lobelia leucotos* have previously been determined as *Lobelia quadrangularis* R.Br., *Pratia purpurascens* (R.Br.) E.Wimm. or *P. puberula* Benth. All those three species differ from *Lobelia leucotos* in having penicillate hairs subtending the seta at the apex of the ventral two anthers, and in having all staminal filaments

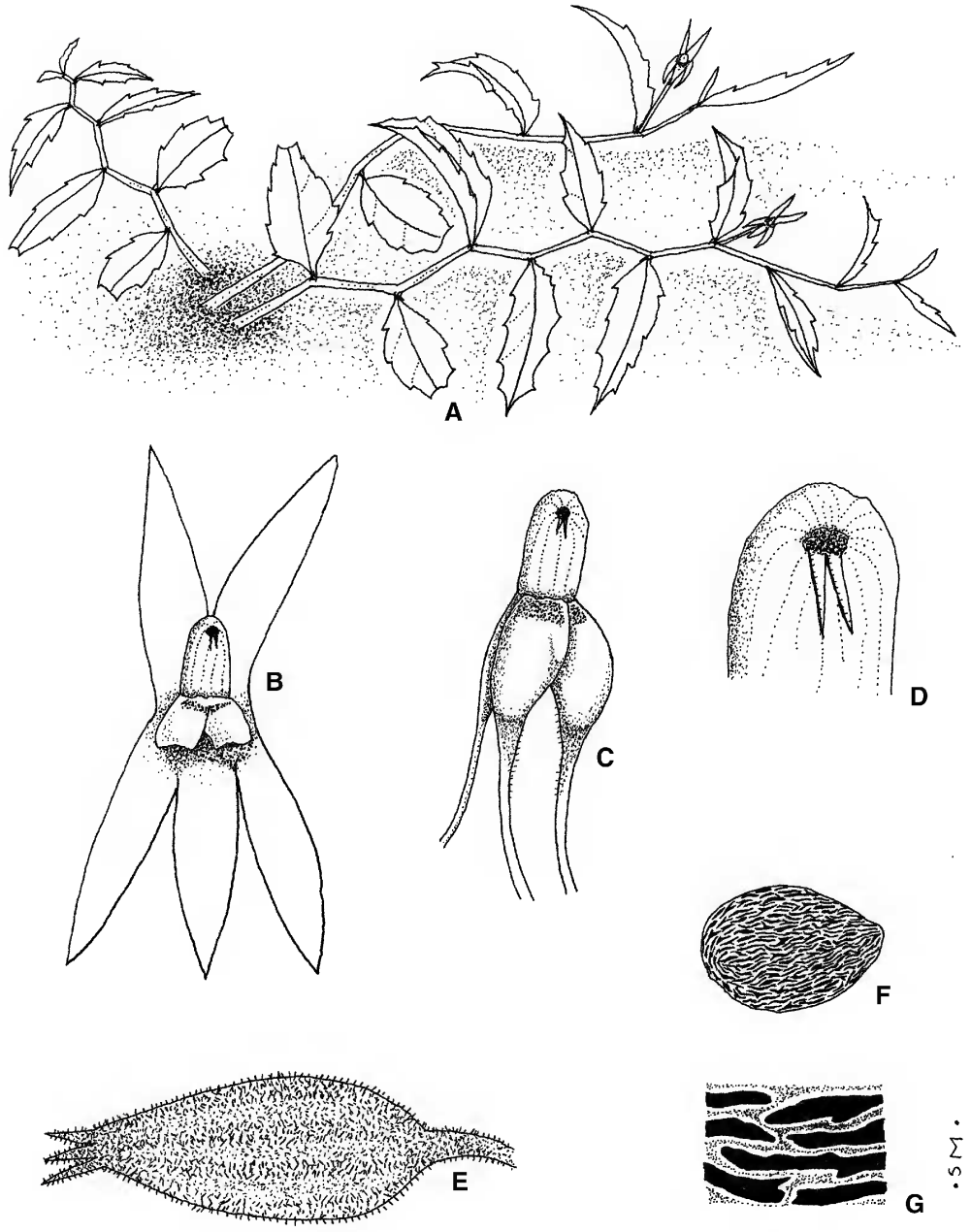

Fig. 1. ***Lobelia leucotos*****:** A. Habit, × 1. B. Functionally male flower, × 8.C. Androecium of functionally male flower showing anther tube, two ventral staminal filaments and one of three dorsal staminal filaments, × 10. D. Anther tube orifice of functionally male flower, × 40. E. Fruit, × 6. F. Seed, × 50.G. Seed ornamentation showing elongate alveolae, × c. 400 A-G - drawn from cultivated material originating from type locality, *J. Clarkson* s.n.

evenly textured and tapering more or less gradually from apex to base. *L. quadrangularis* also differs from *L. leucotos* in having bisexual flowers with blue to mauve corollas and anther tubes with short fine hairs on the dorsal exterior surface. *P. purpurascens* also differs from *L. leucotos* in having glabrous or almost glabrous hypanthia, the upper corolla lobes markedly narrower than the lower lobes, and larger seeds > 0.7 mm rather than < 0.6 mm long. *P. puberula* also differs from *L. leucotos* in having more deeply split corolla tubes split to <0.7 mm rather than 0.8–1.5 mm from the base and indehiscent rather than dehiscent fruit.

Specimens of *L. leucotos* show considerable variation in leaf size, shape and prominence of marginal toothing. Corolla size and plant indumentum, on the other hand, exhibit low variability within the species. Very few ripe fruit of this species have been preserved in herbarium specimens. In those studied, the narrow summit of the fruit expands to 0.5–1.5 mm above the distal edge of the hypanthium and separates into two valves when fully mature. The calyx lobes persist and remain erect, often obscuring the summit of the fruit (Fig. 1E). This cryptic dehiscence is similar to that found in *L. darlingensis* (E.Wimm.) Albr. (Albrecht, 1994).

Conservation status: This taxon is not considered rare or threatened.

Etymology: The specific epithet is derived from Greek *leucon-*, white-, and *Otion*, auricle or little ear, in reference to the upper corolla lobes in this species, which bear some resemblance to erect rabbit ears.

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